

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A method ~~of~~ for marine seismic data acquisition,
comprising:
obtaining a 3D wavefield by cross-line acquisition using one or more marine seismic
sources and a plurality of marine seismic receivers arranged into one or more lines, wherein:
the one or more marine seismic sources are towed behind a seismic vessel;
and
an offset between shooting locations of the one or more seismic sources is
regarded as an equal shift of the line of seismic receivers; and
decomposing a the obtained seismic wavefield , wherein a 3D wavefield is obtained
by a cross-line acquisition and filtered by applying a decomposition filter having two spatial
directions to obtain a decomposed wavefield.
2. (Currently amended) The method of claim 1 wherein the decomposition is
for at least one of a group consisting of up- ~~for~~ down going decomposition , P/S decomposition,
elastic decomposition and acoustic decomposition.
3. (Currently amended) The method of claim 1 wherein the filter comprises
in-line component (k_x) and cross-line ~~components~~ component (k_y) or a spatial representation of
the in-line component (k_x) and cross-line ~~components~~ component (k_y).

4. (Original) The method of claim 1 wherein the filter is applied as a cascaded filter.
5. (Original) The method of claim 1 wherein the filter is a compact filter.
6. (Original) The method of claim 1 wherein the filter filters an obtained pressure wavefield.
7. (Original) The method of claim 1 wherein the filter exclusively filters an obtained pressure wavefield.
8. (Original) The method of claim 1 wherein the step of applying the filter is preceded by a calibration step to match geophone recordings with hydrophone recordings.
9. (Original) The method of claim 1 wherein the step of applying the filter is followed by a step of removing multiples from a component of the decomposed wavefield.
10. (Currently amended) The method of claim 1 wherein the step of applying the filter is followed by a step of imaging or migrating the filtered wavefield to ~~generated~~ generate an image of subterranean formations.
11. (Original) The method of claim 1 wherein the wavefield is obtained through receivers located on the sea floor.

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12. (Original) The method of claim 1 wherein the wavefield is obtained through receivers towed by a vessel.